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Construct Validity and Reliability Testing of Perceived Job Stress as An Academic Leader (PJSAL) Instrument

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Abstract

This study aims to develop the Perceived Job Stress as an Academic Leader (PJSAL) instrument based on a modification of the Dean's Stress Inventory (DSI) instrument (Wild, et al., 2003). DSI is selected because it can accurately identify the potential sources of stress for a dean, which is also applicable in the context of academic leadership in general. This study involved 214 lecturers who responded to the PJSAL instrument via Google Form. Its construct validity was then assessed using Exploratory Factor Analysis (EFA), while its reliability was assessed based on Cronbach's Alpha values. The findings show that the PJSAL instrument has strong construct validity and good reliability (α = .965 for the entire instrument; α = .797- .918 for each subscale). The results of the EFA also reveal the existence of 10 factors in the PJSAL instrument, which are extracted from the 38 items composing it. The instrument is found not to be much different from DSI, except for the emergence of a new factor called role ambiguity.

Keywords: perceived job stress, academic leadership, construct validity, reliability, exploratory factor analysis

Abstrak

Penelitian ini dilakukan untuk mengembangkan instrumen Perceived Job Stress sebagai Pemimpin Akademik (PJSAL). Instrumen ini merupakan hasil modifikasi dari alat ukur Dean's Stress Inventory (DSI) (Wild, et al., 2003). DSI dipilih karena mampu mengidentifikasi secara komprehensif faktor-faktor yang menjadi sumber stres potensial bagi seorang dekan, yang juga relevan digunakan dalam konteks kepemimpinan akademik secara umum. Uji validitas konstruk dilakukan dengan metode Exploratory Factor Analysis (EFA) sedangkan uji reliabilitas dilakukan dengan teknik Cronbach's Alpha. Sebanyak 214 orang dosen berpartisipasi dalam penelitian ini melalui pengisian google form. Hasil penelitian menunjukkan bahwa instrumen PJSAL valid secara konstruk serta memiliki reliabilitas yang baik (Cronbach's α = .965 untuk keseluruhan instrumen, Cronbach's α = .797- .918 untuk masing-masing subskala). Hasil uji tersebut juga menemukan bahwa instrumen PJSAL terdiri atas 10 buah faktor yang terbentuk dari 38 aitem yang menyusunnya. Hasil ini tidak jauh berbeda dengan DSI kecuali munculnya tambahan faktor baru yang disebut ambiguitas peran (role ambiguity).

***Keywords**: perceived job stress, kepemimpinan akademik, validitas konstruk, reliabilitas, exploratory factor analysis*

Introduction

The various challenges and pressures at work often cause perceived stress among lecturers who serve as leaders at the faculty or university level (Wild, et al., 2003). Gmelch (2019), for example, has pinpointed the difficulty of a lecturer in maintaining his identity as an academician when in tenure. The

lecturer tends not to have enough time to continuously update and develop his knowledge, thereby causing him considerable stress. Purnamasari (2015) has also mentioned lack of support and excessive workload as possible causes of stress for the lecturers on duty. Watba & Farmer (2006) have particularly noted that the problems of financial management of the unit they lead, namely the issues of program financing, budget cuts, and reduced resources, can be the main stressors for the lecturers. All of these conditions can have a negative effect on the lecturers' intention to continue their tenure (Purnamasari, 2015).

Besides those currently in tenure, lecturers in general can experience perceived stress towards university leadership or managerial positions. In their research at a private university in Jakarta, Yosua & Panggabean (2021) have shown how the lecturers' negative perceptions of the excessive demands given during tenure and the lack of support can lead to increased perceived stress towards the position, which ultimately may reduce their interest in leading. This phenomenon has been echoed by Williams, et al. (2010), who state that leadership is not a position that lecturers are interested in, albeit seemingly prestigious (Misra, et al., 2011). Therefore, the issue of perceived stress needs to be addressed given the importance of leadership roles in every university. The presence of a leader determines the sustainability of the organization because a leader has a significant role in determining goals and simultaneously encouraging everyone in the organization to move towards those goals. If the perceived stress is not managed effectively, in addition to causing health problems and burnout, it will result in difficulties in encouraging potential candidates who can take the leadership role (Cloud, in Wild, et al., 2003).

Perceived stress, as defined by Cohen & Williams (in Klein et al., 2016), refers to the extent to which a person construes what is happening as stressful. In a similar vein, Phillips (2013) regards perceived stress as a feeling or thought that a person has concerning how stressed they are under certain circumstances in a certain period of time. Perceived stress is typically pertinent to the feelings about how controlled or predictable a situation is in one's life, combined with the confidence one has to deal with this situation (Phillips, 2013). When a person assumes that a condition in his life is easily under his control, he will become less stressed and is more willing to be involved in it. Conversely, when he considers a situation in his life difficult to control, he will likely experience more stress, resulting in less interest in engaging in such a situation. This condition is also relevant in the context of leadership. When a leadership situation or role is perceived to be manageable, the role will be considered less stressful, increasing one's motivation to lead. On the other hand, when a leadership situation or role is perceived to be difficult to control, the role may be seen as stressful, reducing one's motivation to lead. At this point, it is apparent that there is a relationship between environmental factors and leadership motivation (Porter, et al., 2016), where the perception of the manageability of the leadership role may determine one's interest in taking the role.

It is therefore essential to identify the perceived stress towards leadership positions in higher education management for both the succession interest and leadership preparation. For this purpose, one of the first instruments to identify the perceived stress level of university leaders was developed by Gmelch & Burns (1994): the Department Chair Stress Index (DCSI), an instrument to measure the perceived stress experienced specifically by the head of the department while they are in office. A more recent instrument was developed by Wild, et al. (2003): the Dean Stress Inventory (DSI), which was intended to measure the perceived stress experienced by a group of deans. Unfortunately, these two instruments only measure perceived stress for those who are currently holding leadership positions, overlooking the fact that perceived stress can also be experienced by all lecturers and such stress will affect their willingness to be in leadership positions.

To address this specific need, the present study proposes the Perceived Job Stress as an Academic Leader (PJSAL) instrument, which is developed based on the modification of the DSI instrument. DSI consists of nine factors constituting the instrument, namely (1) role strain; (2) managing human interactions; (3) intrinsic job demands; (4) managing professional/personal life; (5) professional maturity; (6) balancing leadership and scholarship; (7) administrative identity; (8) fiscal responsibilities; and (9) external constituency demands. Despite the limited scope of its target population, DSI has the advantage

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because it has comprehensively mapped the factors that cause stress for incumbent lecturers, especially the deans. These factors can in fact be relevant to the context of academic leadership in general.

In relation to this, the development of PJSAL is expected to provide input to institutions regarding what factors are perceived by lecturers to significantly trigger stress when taking office. The identification of items in PJSAL can further be beneficial to determine the necessary interventions that will spark the lecturers' interest in taking leadership roles. To ensure the applicability of the PJSAL instrument, this study aims to (1) examine the construct validity of the PJSAL instrument and (2) examine the reliability of the PJSAL instrument.

Methods

Participants

The data collection in this study involved 214 participants who work as full-time lecturers at various universities in Indonesia. The minimum number of 200 respondents, as suggested by Comrey & Lee (in Williams, et al., 2010), is considered sufficient to perform EFA. The participants were selected using non-probability sampling with convenience sampling technique, which is a sampling technique based on the availability of participants to be involved in this study (Cohen, et al., 2013).

Instruments

The Perceived Job Stress as an Academic Leader (PJSAL) instrument was developed based on the adaptation of the Dean's Stress Inventory (DSI) instrument (Wild, et al., 2003). The DSI per se was initially developed from Department Chair Stress Index (DCSI) (Gmelch & Burns, 1994), which began with the interest of the two researchers in finding multidimensional stress sources as a consequence of the dual roles that must be carried out by a department head (i.e., the role of lecturer and manager) (Wild, 2002).

The DSI development consisted of three stages, namely the preparation, the trial, and the field data collection. In the preparatory stage, the DSI was administered to seven deans in Iowa, United States, who confirmed the clarity of the items and the validity of the questionnaire items. During the trial stage, participants were asked to respond to all items in the DSI instrument and provide notes if there were items that were either not understandable or not reflective of the context of leadership as dean. Based on these results, modifications were made to make the instrument more suitable for measuring the dean's perceived stress. The process continued with the data collection stage, which involved 322 deans who were members of the American Association of Community Colleges (AACC). Principal Component Analysis (PCA) with varimax rotation indicated that there were nine factors that made up DSI (see Table 1), with the Cronbach's α reliability values ranging from .48 to .87 (Wild, et al., 2003). The items for each factor itself contained various work situations that had been identified as potential sources of stress for a dean.

Table 1. Factors in Dean's Stress Inventory Instrument (Wild, et al., 2003)

Factor	Definition	Reliability (Cronbach's α)
Factor 1: Role Strain	This factor identifies the perceived stress felt by the dean in the midst of various interactions and expectations, especially when dealing with superiors.	.87
Factor 2: Managing Human	This factor identifies the perceived stress felt by the dean when dealing with various conflicts with colleagues, administrative staff or students.	.84
Factor 3: Intrinsic Job Demands	This factor identifies the perceived stress felt by the dean when dealing with various tasks and the pressure of time-consuming administrative responsibilities.	.85

Factor 4: Managing Professional/Personal Life	This factor identifies the perceived stress felt by the dean when trying to meet the social expectations toward the position as a dean.	.78
Factor 5: Professional Maturity	This factor identifies the perceived stress felt by the dean in relation to the adequacy of experience and comfort in a leadership position.	.63
Factor 6: Balancing Leadership and Scholarship	This factor identifies the perceived stress felt by the dean when trying to balance the conflict between the leadership role and the academic role.	.70
Factor 7: Administrative Identity	This factor identifies the perceived stress felt by the dean in relation to his/her professional identity as an administrator.	.81
Factor 8: Fiscal Responsibilities	This factor identifies the perceived stress felt by the dean when managing budget and resources.	.76
Factor 9: External Constituency Demands	This factor identifies the perceived stress felt by the dean when interacting with constituencies outside the campus to fulfill leadership responsibilities.	.48

To develop the PJSAL instrument, we initially sought permission from Larry Ebbers, one of the developers of the DSI instrument (Wild, et al., 2003), which allowed us to translate and modify the instrument as needed. After obtaining the permission, we translated the instrument from English to Indonesian and translated it back from Indonesian to English. Both processes were carried out to ensure the accuracy of the translation in accordance with Indonesian grammar. To further support the translation process, we were assisted by two psychology graduates at the master's level with adequate English proficiency—as shown by their success in completing their studies abroad, where English serves as the language of instruction.

With the instruments already translated in the two versions, we proceeded to the expert judgment process, where we consulted with linguists with the aim of assessing the congruence of meaning between the two translations and with a psychologist to validate the accuracy of the items according to the research context (Indonesian Universities context). In light of these results, we modified the items in several ways, namely (1) item elimination, (2) item addition, and (3) item refinement. In the item elimination, for example, we discarded some items, including "Promoting diversity among faculty, students, and the leadership teams," "Not knowing how my supervisor evaluates my performance," and so on. Besides, we added several items, such as “Feeling unclear about the role I should perform”, “Lacking an adequate preparation for my duties as a leader”, and so on. Finally, in the refinement stage, we revised several items so that they can represent the research context and the linguistic meaning more accurately. For example, the item "Evaluating chair, faculty, and staff performance" was changed into "Evaluating the performance of fellow lecturers or administrative staff." Another example was that the item "Receiving insufficient recognition for my performance" was revised into "Receiving insufficient appreciation for my performance."

In addition, we modified the instructions in the instrument. Unlike the DSI instructions, which ask the participants—the deans—to rate how much stress they experience when facing various potentially stressful situations while in tenure, PJSAL asks lecturers to rate how much stress they experience in general when they are positioned as academic leaders. The instrument consists of items with a 5-point Likert scale whose scores range from 1 (Low-Stress Level) to 5 (High-Stress Level). The whole process results in 42 PJSAL items, which will then be examined for their construct validity and reliability (see Appendix).

Data Analysis

Exploratory Factor Analysis (EFA) was used to assess the construct validity of the PJSAL instrument. EFA, as described by Floyd & Widaman (in Cohen, et al., 2013), is a technique used to estimate, extract factors, determine the number of factors that can be maintained, and rotate factors so that they can be interpreted. Through EFA, the instrument can be validated internally in accordance with the research objectives, and the number of factors in the instrument and its constituent items can be identified. The next step is to test the reliability of the instrument (Azwar, 1997) using the Cronbach's Alpha value. This technique was selected because it is one of the most commonly used reliability tests (Bryman & Bell, 2011). The data analysis in this study was performed entirely using SPSS.

Results and Discussion

Demographic Data

A total of 214 lecturers participated in this study by filling out an instrument that was distributed online via Google Form. 122 participants (57%) were female, while the other 92 (43%) were male. The age of most respondents fell within the range of 31-40 years old, amounting to 87 people (40.7%), which was followed by the 41–50 years age group with 59 people (27.6%). Most of the participants held a master's degree, reaching 142 people (66.4%), with 134 people (62.6%) coming from the Faculty of Social Sciences. In terms of academic positions, as many as 74 respondents (34.6%) had AA-150 (Assistant Professor-150) academic positions, followed by teaching staff with 40 people (18.7%) and L-200 (Assistant Professor-200) with 39 people (18.2%). Regarding the highest structural position ever held, around half of the participants ever had or currently hold a leadership position at the faculty level, counting up to 108 people (50.5%). Finally, concerning their leadership experience, a total of 84 people (39.3%) had leadership experience between 1 to 5 years, while 80 people (37.4%) had never served as academic leaders (see Table 2).

Table 2. Demographic Profile of Research Participants

Demographic Characteristics	Frequency	Percentage
Gender		
Male	92	43
Female	122	57
Age		
26 – 30 years	24	11.2
31 – 40 years	87	40.7
41 – 50 years	59	27.6
51 – 60 years	29	13.5
Above 60 years	15	7
Education Level		
Bachelor level with professional degree	6	2.8
Master level	142	66.4
Doctoral level	66	30.8
Faculty Background		
Natural Science	80	37.4
Social Science	134	62.6
Academic Position		
TP (Lecturer)	40	18.7
AA-100 (Assistant Professor-100)	6	2.8
AA-150 (Assistant Professor-150)	74	34.6
L-200 (Assistant Professor-200)	39	18.2
L-300 (Assistant Professor-300)	25	11.7
LK-400 (Associate Professor-400)	16	7.5
LK-550 (Associate Professor-550)	4	1.87

LK-700 (Associate Professor-700)	5	2.3
GB-850 (Full Professor-850)	4	1.87
GB-1050 (Full Professor-1050)	1	0.46
Highest Structural Position		
Leader in university level	26	12.1
Leader in faculty level	108	50.5
No leadership experiences	80	37.4
Tenure		
No leadership experience	80	37.4
Between 0 - 1 years	12	5.6
Between 1 - 5 years	84	39.3
Between 6 - 10 years	22	10.3
Between 11 - 15 years	10	4.7
Between 16 - 20 years	3	1.4
Above 20 years	3	1.4
Total	214	100

Construct Validity Test

The 42 items in the PJSAL instrument were tested for their construct validity. The result of the Kaiser-Meyer-Olkin (KMO) analysis shows a value of .937, which indicates that the number of samples is adequate for EFA (Hutcheson & Sofroniou, in Field, 2013). The Bartlett's Test of Sphericity also shows a significant result ($\chi^2_{(861)} = 7100.680$, $p<.05$), indicating a significant relationship among the items in the instrument. The results of the two tests above allow the factor analysis to be performed on the 42 items.

To determine the number of factors with each item clustered into only one factor, the oblique rotation (oblimin) and orthogonal rotation (varimax) with factor loadings of at least .5 were used. The factor loadings of .5 or greater are considered practically significant to measure the correlation of each item with its factors (Hair, et al., 2019). It is then revealed that the varimax rotation with ten factors seems to give the most optimal results. It is worth noting that four items (PJSAL 15, PJSAL 18, PJSAL 19, and PJSAL 21) were omitted because they did not cluster into any dimensions after extraction. In the end, the EFA test produced a total of 38 items constituting 10 factors, with their respective eigenvalues and data variance (see Table 3).

Table 3. Exploratory Factor Analysis with Varimax Rotation

Item	***Extracted Factors* (1-10)**									
	1	2	3	4	5	6	7	8	9	10
PJSAL_1									.849	
PJSAL_2									.798	
PJSAL_3							.682			
PJSAL_4							.520			
PJSAL_5							.664			
PJSAL_6										.579
PJSAL_7										.697
PJSAL_8										.733
PJSAL_9			.691							
PJSAL_10			.682							
PJSAL_11			.739							
PJSAL_12			.529							
PJSAL_13			.615							
PJSAL_14			.522							
PJSAL_16								.748		
PJSAL_17								.663		
PJSAL_20								.565		
PJSAL_22						.670				
PJSAL_23						.651				
PJSAL_24						.643				

PJSAL_25						.739				
PJSAL_26	.741									
PJSAL_27	.709									
PJSAL_28	.781									
PJSAL_29	.772									
PJSAL_30	.670									
PJSAL_31					.704					
PJSAL_32					.715					
PJSAL_33					.716					
PJSAL_34				.856						
PJSAL_35				.809						
PJSAL_36				.782						
PJSAL_37		.604								
PJSAL_38		.636								
PJSAL_39		.748								
PJSAL_40		.765								
PJSAL_41		.795								
PJSAL_42		.566								
Eigenvalues	18.847	2.588	2.125	1.615	1.402	1.205	1.121	1.017	0.894	0.877
Data Variance	44.874%	6.163%	5.059%	3.845%	3.338%	2.870%	2.668%	2.420%	2.129%	2.087%

After the ten factors are identified, the factors are labelled with representative names. Table 4 lists the names given to the ten factors making up the PJSAL instrument. It is also apparent that the number of items that compose each factor varies from 2 items (Factor IX) to 6 items (Factor II and Factor III) and that the items' loading factor range from .520 to .856. Table 5 further provides the definition of each factor.

Table 4. The PJSAL Instrument dan its Constituent Factors

Factor	Name of Factor	Number of Items	Item	Loading Factor
Factor I	Lack of Leadership Preparation	5	26, 27, 28, 29, 30	.670 - .781
Factor II	Managing Finance, Marketing and Stakeholder Relations	6	37, 38, 39, 40, 41, 42	.566 - .795
Factor III	Managing Internal Working Relations	6	9, 10, 11, 12, 13, 14	.522 - .739
Factor IV	Lack of Appreciation for Performance	3	34, 35, 36	.782 - .856
Factor V	Having Limited Time for Academic Activities	3	31, 32, 33	.704 - .716
Factor VI	Attending Various Meetings as an Official	4	22, 23, 24, 25	.643 - .739
Factor VII	Lack of Control over Work	3	3, 4, 5	.520 - .682
Factor VIII	Running Daily Administrative Routines	3	16, 17, 20	.565 - .748
Factor IX	Managing Relations with Superiors	2	1, 2	.798 - .849
Factor X	Role Ambiguity	3	6, 7, 8	.579 - .733

Table 5. Definition of the Factors in the PJSAL Instrument

Factor	Name of Factor	Definition
Factor I	Lack of Leadership Preparation	This factor identifies the perceived stress felt by lecturers when having to lead with limited preparation.
Factor II	Managing Finance, Marketing and Stakeholder Relations	This factor identifies the perceived stress felt by lecturers when involved in financial management and fundraising, promotional/marketing activities, and relationships with stakeholders, during their tenure.
Factor III	Managing Internal Working Relations	This factor identifies the perceived stress felt by lecturers when managing internal relationships with fellow lecturers, educational staff, and students, during their tenure (e.g., dealing with conflicts, evaluating performance, making decisions)
Factor IV	Lack of Appreciation for Performance	This factor identifies the perceived stress felt by lecturers when having to lead despite the lack of appreciation received.
Factor V	Having Limited Time for Academic Activities	This factor identifies the perceived stress felt by lecturers when having insufficient time to develop an academic career as a consequence of the leadership position.
Factor VI	Attending Various Meetings as an Official	This factor identifies the perceived stress felt by lecturers when participating in various events/meetings while in tenure.
Factor VII	Lack of Control over Work	This factor identifies the perceived stress felt by lecturers when having to lead with limited authority.
Factor VIII	Running Daily Administrative Routines	This factor identifies the perceived stress felt by lecturers when having to handle various daily administrative routines as a leader.
Factor IX	Managing Relations with Superiors	This factor identifies the perceived stress felt by lecturers when managing relationships with superiors while in tenure.
Factor X	Role Ambiguity	This factor identifies the perceived stress felt by lecturers when having to lead amid unclear roles.

Reliability Test

Following the construct validity test, the reliability test was conducted using the Cronbach's Alpha technique. Kline (in Field, 2013) explains that an instrument must have a Cronbach's alpha of at least .70 (>.70) to be considered "quite satisfactory" in a reliability test. The reliability test on the entire PJSAL instrument shows a Cronbach's α coefficient value of .965, which means that this instrument has high reliability. The reliability test for each subscale also shows good reliability values, with the alpha values ranging from .797 to .918 (see Table 6).

Table 6. Instrument Reliability and Subscale Reliability

Instrument/Factor	Number of Items	Item	Reliability
PJSAL	38	1 - 38	.965
Factor I: Lack of Leadership Preparation	5	26, 27, 28, 29, 30	.911
Factor II: Managing Finance, Marketing and Stakeholder Relations	6	37, 38, 39, 40, 41, 42	.918
Factor III: Managing Internal Working Relations	6	9, 10, 11, 12, 13, 14	.887
Factor IV: Lack of Appreciation for Performance	3	34, 35, 36	.903
Factor V: Having Limited Time for Academic Activities	3	31, 32, 33	.867

Factor VI: Attending Various Meetings as an Official	4	22, 23, 24, 25	.832
Factor VII: Lack of Control over Work	3	3, 4, 5	.797
Factor VIII: Running Daily Administrative Routines	3	16, 17, 20	.796
Factor IX: Managing Relations with the Superiors	2	1, 2	.876
Factor X: Role Ambiguity	3	6, 7, 8	.866

Factor Ranking Based on Mean

To identify which of the ten factors in the PJSAL instrument were perceived by the research participants to cause more stress in relation to their university leadership/managerial positions, the means of each factor were calculated. It is shown that the means of the ten factors range from 2.75 to 3.29, with the top three factors that cause stress most significantly including Factor V (Having Limited Time for Academic Activities), Factor X (Role Ambiguity), and Factor VII (Lack of Control over Work). On the other hand, the three lowest factors are Factor III (Managing Internal Working Relations), Factor VIII (Running Daily Administrative Routines), and Factor VI (Attending Various Meetings as an Official) (see Table 7).

Table 7. Factor Ranking on Research Participants

Rank	Mean*	Factor	Name of Factor
1	3.29	V	Having Limited Time for Academic Activities
2	3.17	X	Role Ambiguity
3	3.14	VII	Lack of Control over Work
4	3.06	II	Managing Finance, Marketing and Stakeholder Relations
5	3.02	IX	Managing Relations with the Superiors
6	3.00	I	Lack of Leadership Preparation
7	2.98	IV	Lack of Appreciation for Performance
8	2.96	III	Managing Internal Working Relations
9	2.91	VIII	Running Daily Administrative Routines
10	2.75	VI	Attending Various Meetings as an Official

*The mean ranges from 1-5, with a score of 1 denoting "Low Stress Level" and a score of 5 denoting "High Stress Level"

Discussion

This study aims to develop the Perceived Job Stress as an Academic Leader (PJSAL) instrument. The findings indicate that the PJSAL instrument has a strong construct validity to measure the perceived job stress of lecturers towards their academic leadership roles. Based on the Exploratory Factor Analysis (EFA), the 38 items in the instrument could be categorized into 10 factors, with the other four items eliminated because they did not meet the requirements to be clustered into only one dimension only—based on the cut-off factor loading value of .5. These ten factors include a) Lack of Leadership Preparation (Factor I); b) Managing Finance, Marketing, and Stakeholder Relations (Factor II); c) Managing Internal Working Relations (Factor III); d) Lack of Appreciation for Performance (Factor IV); e) Having Limited Time for Academic Activities (Factor V); f) Attending Various Meetings as an Official (Factor VI); g) Lack of Control over Work (Factor VII); h) Running Daily Administrative Routines (Factor VIII); i) Managing Relations with Superiors (Factor IX); and j) Role Ambiguity (Factor X). The subsequent reliability test also shows that the PJSAL instrument has high reliability in both its entire scale and each of the subscales. The instrument has a Cronbach's Alpha coefficient value of .965 for the whole instrument and a value ranging from .797 to .918 for each subscale.

The number of factors extracted in the PJSAL instrument was slightly higher than the number of factors in the DSI instrument with no substantial differences: PJSAL with 10 factors and DSI with 9 factors. It was found that as many as six factors in PJSAL (Factor I, Factor III, Factor IV, Factor V, Factor VI, Factor VIII) share identical meanings to the six factors in DSI. Furthermore, the comparison reveals that one of the factors in PJSAL (Factor II) can be representative of the two factors in DSI, that two factors in PJSAL (Factor VII and Factor IX) can be subsumed under one factor in DSI and that one factor in PJSAL (Factor X) is not found to be equivalent to any factor in DSI (see Table 8). Although often discussed as a potential source of stress for lecturers who serve as leaders (Wild, et al., 2003; Gmelch, 2019), role ambiguity is a relatively new factor extracted in the PJSAL instrument, which refers to the ambiguity of roles that lecturers must carry out while in duty.

Table 8. Equivalence Factors on PJSAL instrument and DSI instrument

PJSAL		DSI	
Factor	**Name of Factor**	**Factor**	**Name of Factor**
I	Lack of Leadership Preparation	V	Professional Maturity
II	Managing Finance, Marketing and Stakeholder Relations	VIII	Fiscal Responsibilities
		IX	External Constituency Demands
III	Managing Internal Working Relations	II	Managing Human
IV	Lack of Appreciation for Performance	VII	Administrative Identity
V	Having Limited Time for Academic Activities	VI	Balancing Leadership and Scholarship
VI	Attending Various Meetings as an Official	IV	Managing Professional/Personal Life
VII	Lack of Control over Work	I	Role Strain
VIII	Running Daily Administrative Routines	III	Intrinsic Job Demands
IX	Managing Relations with the Superiors	I	Role Strain
X	Role Ambiguity	-	-

The factors found in this study confirm the results of some previous studies regarding the potential stressors for lecturers who serve as leaders. For instance, in line with Purnamasari (2015), the excessive workload experienced during the tenure emerges as one of the factors causing stress (i.e., Factor VIII). The problem of financial management, which has been pinpointed by Watba & Farmer (2006) as the major stressor for leaders, turns out to be one of the factors too (see Factor II). Besides, the factors generated in the PJSAL instrument are related to the factors appearing in the two previously developed instruments, namely DCSI (Gmelch & Burns, 1994) and DSI (Wild, et al., 2003). For example, Factor V (Having Limited Time for Academic Activities) is comparable to "the professional identity stress factor" in DCSI (Gmelch & Burns, 1994) and "the balancing leadership and scholarship factor" in DSI (Wild, et al., 2003). This shows that the stress felt by lecturers towards managerial positions or university leadership roles, along with the constituent factors, does exist. The work stress that is experienced as an academic leader is found not only among lecturers in tenure but also among lecturers in general.

Other findings from the factor ranking analysis reveal the factors that are considered the most significant causes of stress: Having Limited Time for Academic Activities (Factor V), Role Ambiguity (Factor X), and Lack of Control over Work (VII). This finding is essential for universities as a basis for intervention measures to ensure the continuity of succession. The limited time to carry out academic activities is ranked first as the most significant perceived stress factor for lecturers towards the academic leadership roles, which echoes the statement of Gmelch (2019), who has pointed out the lack of time for leaders to consistently update their knowledge as one of the biggest stressors. This perceived tension is likely to arise because the main motivation for lecturers to join higher education is usually not to become

a leader but to engage in activities embodied in the "Three Pillars of Higher Education" (*Tri Dharma Perguruan Tinggi*), namely education, research, and community service. In addition, the performance measurement of lecturers is still mainly oriented towards the fulfillment of the three principles constituting Tri dharma even though they hold academic leadership positions, resulting in their inability to balance the two and consequently increasing the perceived stress towards such leadership roles.

The other two factors that are deemed to be the primary causes of stress for lecturers are role ambiguity and lack of control over work. These two factors are closely related to the professional role as a leader per se, which is often considered ambiguous (Purnamasari, 2015). This role ambiguity can be attributed to the unclear expectations imposed on the lecturers who serve as leaders or the lack of authority given to fulfill these expectations. These two shortcomings often make the lecturers unaware of how to act, or even if they do make decisions, they are probably not sure whether what they do is right or not. As a consequence, the inability to fully control the work can increase the stress felt by lecturers in their roles as academic leaders. To mitigate or reduce such stress, universities can further develop various intervention programs. For example, to reduce the perceived stress caused by the limited time they have to stay updated with the academic activities, universities may consider providing staff or assistants who can help with routine work or research management, reducing the burden on the academic leaders and allowing them to focus more on strategic tasks. In another case concerning the stress stemming from unclear roles or lack of authority, universities may consider revising the job descriptions of academic leaders, which can clarify the tasks and responsibilities assigned to them.

Conclusion

Based on the two test results above, it can be concluded that PJSAL has strong construct validity and good reliability. The results of Exploratory Factor Analysis (EFA) reveal 10 factors extracted from 38 items with a cut-off factor loading value of .5, whereas the Cronbach's alpha test shows that the PJSAL instrument Is reliable with a reliability value of .965 for all instruments and a value between .797 and .918 for each subscale. Thus, PJSAL can be a reliable instrument to measure the perceived stress felt by lecturers based on the factors that have been identified as potential sources of stress for an academic leader. This instrument can further be useful for scientists and practitioners who are interested in conducting research in this area, either during the data collection or during the research conceptual framework building. Besides, this instrument can serve as a basis for the development of various programs or policies, depending on the significance of the issue at a university. For example, if "Role Ambiguity" is found to be the most stressful problem for lecturers who serve as leaders, the university must clarify the job responsibilities of the job holder (as written in the job description) to minimize the role ambiguity that occurs. Or if "Lack of Leadership Preparation" is found to be the most stressful problem for lecturers who serve as leaders, the university should develop specific training programs to prepare candidates to understand all areas of work, etc.

Nevertheless, as this research is a preliminary study, further research can solidify the research findings in this area. Furthermore, the use of qualitative methods can provide a more in-depth inductive analysis of what causes stress for an academic leader. This will provide a more comprehensive account of these factors, enriching the insights gained from the quantitative research.

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Appendix

Instrument (Indonesian Version)

1. Berusaha mempengaruhi tindakan dan keputusan yang akan diambil oleh atasan saya *(Trying to influence my superiors' actions and decisions)*

2. Menyelesaikan perbedaan pandangan dengan atasan *(Resolving disagreements with superiors)*
3. Tidak memiliki otoritas yang cukup untuk menjalankan tanggung jawab saya dalam unit kerja (baik di tingkat program studi/fakultas/biro/universitas) *(Having no sufficient authority to carry out my responsibilities in the work unit (at the study program/faculty/bureau/university level))*
4. Merasa bahwa saya tidak akan mampu memenuhi tuntutan yang saling bertentangan dari mereka yang berada pada posisi otoritas di atas saya *(Feeling that I will not be able to meet the conflicting demands from those in positions of authority above me)*
5. Merasa orang lain tidak memahami tujuan maupun harapan saya sebagai seorang pimpinan *(Feeling that other people do not understand my goals and expectations as a leader)*
6. Merasa tidak terinformasikan secara jelas mengenai peran yang harus saya jalankan *(Feeling uninformed about the roles I should perform)*
7. Tidak paham mengenai ruang lingkup pekerjaan saya sebagai seorang pemimpin *(Not understanding the scope of my job as a leader)*
8. Tidak mengetahui bagaimana saya harus menjalankan tugas dalam jabatan saya *(Not knowing how I should carry out the duties in my position (as a leader))*
9. Menangani permasalahan dan konflik dengan sesama kolega dosen *(Handling problems and conflicts with my fellow lecturers)*
10. Menangani urusan mahasiswa dan konflik-konflik yang terjadi terkait mahasiswa *(Managing student affairs and any student-related conflicts)*
11. Menangani permasalahan dan konflik dengan karyawan kependidikan *(Handling problems and conflicts with administrative staff)*
12. Perlu mengambil keputusan yang berpengaruh terhadap kehidupan sesama kolega dosen, staf, dan mahasiswa *(Having to make decisions that can affect the lives of fellow lecturers, staff, and students)*
13. Menilai kinerja sesama kolega dosen atau karyawan kependidikan *(Evaluating the performance of fellow lecturers or administrative staff)*
14. Mengawasi dan mengkoordinasikan tugas-tugas banyak orang *(Supervising and coordinating other people's tasks)*
15. Merasa beban kerja yang saya miliki terlalu berat *(Feeling that I have too much workload)**
16. Menghadiri rapat-rapat yang menghabiskan terlalu banyak waktu *(Attending meetings that take up too much time)*
17. Sering terganggu oleh panggilan telepon dan pengunjung yang datang *(Often feeling distracted by phone calls and coming visitors)*
18. Berupaya menyeimbangkan kehidupan pekerjaan dan personal saya *(Trying to balance my work and personal life)**
19. Memenuhi tenggat waktu pembuatan laporan dan dokumen-dokumen lainnya *(Meeting the deadlines for making reports and other documents)**
20. Menulis surat dan memo, dan memberikan respon terhadap dokumen yang diterima dari orang lain *(Writing letters and memos and responding to documents received from others)*
21. Menyelesaikan berbagai permasalahan yang muncul dalam pengelolaan unit kerja (baik di tingkat program studi/fakultas/biro/universitas) *(Resolving various problems that arise in the management of work units (either at the study program/faculty/bureau/university level))**
22. Memenuhi kewajiban sosial sebagaimana yang diharapkan dari seorang pejabat struktural (perkumpulan, acara seremonial, pekerjaan sukarela/kepanitiaan) *(Fulfilling social obligations as expected from a structural official (e.g., association, ceremonial events, volunteering work/committee))*
23. Berpartisipasi dalam aktivitas terkait pekerjaan di luar jam kantor yang berkonflik dengan urusan pribadi *(Participating in work-related activities outside of the office hours that conflict with personal matters)*
24. Berpartisipasi/hadir dalam pertemuan-pertemuan profesional *(Attending professional meetings)*
25. Harus bepergian untuk memenuhi ekspektasi pekerjaan *(Having to travel to meet job expectations)*
26. Merasa bahwa saya tidak cukup terlatih untuk menangani pekerjaan saya sebagai seorang pimpinan *(Feeling that I am not trained enough to handle my job as a leader)*

27. Merasakan tekanan untuk menghasilkan kinerja yang lebih baik melampaui apa yang saya anggap pantas *(Feeling under pressure to perform better beyond what I deem appropriate)*
28. Merasa bahwa saya tidak cukup berkompeten untuk menduduki jabatan tersebut *(Feeling that I am not competent enough for the position)*
29. Minimnya pembekalan yang memadai untuk tugas saya sebagai pimpinan *(Lacking an adequate preparation for my duties as a leader)*
30. Minimnya mentor yang dapat berperan sebagai teman diskusi atau tempat bertanya saat menemui masalah dalam peran sebagai pimpinan *(Lacking any mentors who can act as discussion partners or who can respond to my questions when I encounter issues in my leadership role)*
31. Tidak cukup waktu untuk terus memperbaharui pengetahuan yang saya miliki dalam bidang ilmu saya *(Not having enough time to update my knowledge in my discipline)*
32. Berusaha menyeimbangkan tanggung jawab manajerial dan akademis saya *(Trying to balance my managerial and academic responsibilities)*
33. Meyakini bahwa perkembangan karir saya secara akademik tidak akan berjalan sebagaimana mestinya *(Believing that my academic career will not progress as it should)*
34. Menerima kurangnya apresiasi untuk kinerja saya *(Receiving insufficient appreciation for my work performance)*
35. Menerima kurangnya penghargaan saat melakukan fungsi kerja administratif *(Receiving insufficient appreciation when carrying out administrative work functions)*
36. Menerima penghasilan yang tidak sebanding dengan beban kerja *(Receiving compensation that is not commensurate with the workload)*
37. Mempersiapkan anggaran dan pengalokasian sumber daya *(Preparing budget and allocation of resources)*
38. Berusaha mendapatkan dukungan finansial untuk program-program di unit kerja (baik di tingkat program studi/fakultas/biro/universitas) *(Trying to gain financial support for the programs in the work unit (at the study program/faculty/bureau/university level))*
39. Melakukan pertanggungjawaban keuangan di unit kerja (baik di tingkat program studi/fakultas/biro/universitas) *(Carrying out financial accountability in the work unit (at the study program/faculty/bureau/university level))*
40. Harus terlibat dalam aktivitas penggalangan dana *(Having to be involved in fundraising activities)*
41. Harus terlibat dalam berbagai aktivitas promosi/pemasaran (baik di tingkat program studi/fakultas/biro/universitas) *(Having to be involved in various promotional/marketing activities (at the study program/faculty/bureau/university level))*
42. Berusaha memuaskan berbagai hal yang menjadi perhatian pihak-pihak berkepentingan (seperti alumni, masyarakat, pemerintah, dsb.) (*Trying to cater for the various concerns of relevant parties of interest (such as alumni, community, government, etc.))*

**These items were omitted after EFA because they did not cluster into any dimensions after extraction.*

Scoring

Scores range from 1 to 5. A smaller score (closer to one) indicates a lower level of stress, while a larger score (closer to five) indicates a higher level of stress.